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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,830	11/26/2003	Benjamin J. Sun	TRU-2206	9357
7590 09/20/2006			EXAMINER	
Dale R. Lovercheck, Esquire DENTSPLY INTERNATIONAL INC. 570 West College Avenue York, PA 17405			BUTLER, PATRICK	
			ART UNIT	PAPER NUMBER
			1732	

DATE MAILED: 09/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/722,830

Applicant(s)

SUN ET AL.

Examiner

Patrick Butler

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 20040419.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Bowen (US Patent No. 5,792,821).

With respect to Claims 1-24, Bowen teaches using 4-tert-butyl-N,N-dimethylaniline (TBDMA) as a polymer for photoinitiation in dental applications (see col. 12, lines 27-58; col. 5, line 66 through col. 6, line 5). As this polymer meets the claimed limitation of a light curable polymerizable composition, it would necessarily have the same claimed results as the claimed process. Moreover, as this is the polymer used in the process taught by Applicant, it would necessarily have the same claimed results as the claimed process (see Applicant's Specification, page 9, Example 5; page 14, Table 1).

Claims 1-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Rusin et al. (US Patent No. 6,437,019 B1).

With respect to Claims 1-24, Rusin et al. teaches using 4-Tert-butyl-N,N-dimethylaniline (TBDMA) as a polymer for photoinitiated oral (dental) applications (see col. 15 and 16, Table V; col. 16, lines 32-46; col. 2, lines 24-31). As this polymer meets the claimed limitation of a light curable polymerizable composition, it would necessarily

have the same claimed results as the claimed process. Moreover, as this is the polymer used in the process taught by Applicant, it would necessarily have the same claimed results as the claimed process (see Applicant's Specification, page 9, Example 5; page 14, Table 1).

Claims 1-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Bowen (US Patent No. 5,910,551).

With respect to Claims 1-24, Bowen teaches using 4-tert-butyl-N,N-dimethylaniline (TBDMA) as a polymer for photoinitiation in dental applications (see Claim 1, step b, col. 23 line 28 through col. 24, line 6; col. 12, lines 33-63; col. 6, lines 21-28). As this polymer meets the claimed limitation of a light curable polymerizable composition, it would necessarily have the same claimed results as the claimed process. Moreover, as this is the polymer used in the process taught by Applicant, it would necessarily have the same claimed results as the claimed process (see Applicant's Specification, page 9, Example 5; page 14, Table 1).

Claims 1-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Volkel et al. (US Patent No. 6,057,383) as evidenced admitted prior art (Application Number 09/682,440, Declaration under 37 CFR 1.132, filed 06 September 2006).

With respect to Claims 1-24, Volkel teaches rolling and irradiating dental materials(shaping light curable polymerizable compositions). As this polymer meets the claimed limitation of a light curable polymerizable composition, it would necessarily have the same claimed results as the claimed process. Moreover, Admission discloses that the modulus is 207.9 kpsi (less than 250,000 psi) and a flexural strength of 2897 psi

(less than 7,000 psi) (Application No. 09/682,440, Declaration under 37 CFR 1.132, filed 06 September 2006, Page 4, Table 2). Particularly, "Volkel et al. [does] not have a flexural modulus of at least 250,000 psi and a flexural strength of at least 5,000 psi" (Application No. 09/682,440, Declaration under 37 CFR 1.132, filed 06 September 2006, Page 4, first complete paragraph). As this polymer meets the claimed limitation of a light curable polymerizable composition, it would necessarily have the same claimed results as the claimed process. Moreover, as this is the polymer used in the process taught by Applicant, it would necessarily have the same claimed results as the claimed process (see Applicant's Specification, page 9, Example 5; page 14, Table 1).

Claims 1-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Reiners et al. (US Patent No. 4,843,136).

With respect to Claims 1-24, Reiners teaches a light-hardened sample of a dental filling material having a strength of  $64 \text{ N/mm}^2$  (9,280 psi) and a modulus of  $1,852 \text{ N/mm}^2$  (269,000 psi) (see col. 46, lines 43-54). As this polymer meets the claimed limitation of a light curable polymerizable composition, it would necessarily have the same claimed results as the claimed process. Moreover, the values indicted are slightly higher than required by the present claims. However, the test conditions differ, and thus it would necessarily have the claimed values if identically tested since the values are very close of the Claims' values.

Claims 1-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Tateosian et al. (US Patent No. 5,554,665).

With respect to Claims 1-24, Tateosian teaches a light-hardened sample of a dental liner having a strength of 51 or 22 MPa (7,400 or 3,190 psi) and a modulus of 1560 or 1280 MPa (226,000 or 186,000 psi) (Table 7, comparative examples 1 and 2). As this polymer meets the claimed limitation of a light curable polymerizable composition, it would necessarily have the same claimed results as the claimed process.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tregillis (US Patent No. 5,338,190) in view of Bowen (US Patent No. 5,792,821), Rusin et al. (US Patent No. 6,437,019 B1), Bowen (US Patent No. 5,910,551), Volkel et al. (US Patent No. 6,057,383), Reiners et al. (US Patent No. 4,843,136), or Tateosian et al. (US Patent No. 5,554,665).

With respect to Claim 5, Tregillis teaches a method of making a dental product such as a night guard (col. 1, lines 38-41).

Tregillis does not expressly teach using a light curable polymerizable composition. Bowen (US Patent No. 5,792,821), Rusin et al. (US Patent No. 6,437,019 B1), Bowen (US Patent No. 5,910,551), Volkel et al. (US Patent No. 6,057,383), Reiners et al. (US Patent No. 4,843,136), and Tateosian et al. (US Patent No.

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5,554,665) teach using a light curable polymerizable composition for dental applications (as described in the Claim Rejections - 35 USC § 102 section).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the curable polymers of Bowen (US Patent No. 5,792,821), Rusin et al. (US Patent No. 6,437,019 B1), Bowen (US Patent No. 5,910,551), Volkel et al. (US Patent No. 6,057,383), Reiners et al. (US Patent No. 4,843,136), or Tateosian et al. (US Patent No. 5,554,665) in the process of Tregillis in order to utilize various biologically compatible compositions.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick Butler whose telephone number is (571) 272-8517. The examiner can normally be reached on Mo.-Th. 7:30 a.m. - 5 p.m. and alternating Fridays.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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Assistant Examiner  
Art Unit 1732



CHRISTINA JOHNSON  
PRIMARY EXAMINER  
9/18/06